DOCUMENT RESUME

ED 289 157 CS 008 965

AUTHOR Whitmer, Jean Elizabeth; Miller, Margaret
TITLE The Effects of Writing on Reading Abilities: A Comparison of First Grade Writing Programs with and without Computer Technology.
PUB DATE 13 Sep 87
NOTE 92p.; Paper presented at the Annual Reading Conference (18th, Greeley, CO, October 16, 1987).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Comparative Analysis; *Computer Assisted Instruction; Grade 1; Instructional Effectiveness; Language Arts; Primary Education; Reading Achievement; Reading Comprehension; *Reading Instruction; Reading Research; *Reading Writing Relationship; Teaching Methods; Writing Instruction
IDENTIFIERS *Writing to Read Program

ABSTRACT

The IBM Writing to Read program for children in kindergarten and first grade uses computers with voice output and IBM selectric typewriters to encourage writing and hence reading development. A study examined whether increased writing activity without the use of the technology would produce similar gains in reading. A classroom from the IBM program (group A) and an experimental writing classroom (group B) were compared with each other and with a control classroom (group C). Group A used a lab five hours per week for computer-based instruction in sound-symbol relationships, followed by structured story-writing and reading. Group B received four weekly hours of structured story-writing followed by reading, discussing, and expanding the stories. Group C spent approximately two weekly hours in their usual writing activities. Scores showed that the IBM group's gains in Reading Comprehension and Reading Total were significantly higher than those of the control group. Mean gains for group B fell between the other two groups, differing significantly from neither. Among girls, mean gains were greatest in group A and, surprisingly, lowest in group B; however among boys, mean gains were highest in group A, lowest in group C. This suggests that structured writing time, regardless of technology, may have increased their reading abilities. The amount of time scheduled for structured writing appeared to be an important factor. (Student writing samples are included.) (Author/JG)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED289157

The effects of writing on reading abilities: a comparison of first grade writing programs with and without computer technology.

Final Report

September 13, 1987

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Jean Elizabeth Whitmer

and

Margaret Miller

Department of Education

University of Southern Colorado

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Jean E. Whitmer

Margaret Miller

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

CS008965

BEST COPY AVAILABLE

Abstract

A Classroom from the IBM Writing to Read pilot program and an experimental writing classroom were compared with each other and with a control classroom to investigate whether or not writing without technology produces gains in first grade reading ability similar to those produced by the IBM program. Gain scores were computed from pre- and posttesting using the reading subtests of the SRA Survey of Basic Skills.

The Writing to Read group used an IBM-equipped lab for five hours a week which provided computer-based instruction in sound-symbol relationships, followed by structured practice and opportunities for children to use phonemic spelling to write, on the typewriters with word-processing features, stories of their own which they then read. The experimental writing classroom contained no technology but provided four hours a week of structured writing based loosely on the New Hampshire Writing Project and incorporating patterned story books. This included prewriting activities, writing in which invented spelling was accepted, and postwriting activities of reading, discussing, and expanding the stories. The control classroom spent approximately two hours a week in their usual writing activities.

The IBM group's mean gains were higher than those for the control group in Reading Comprehension and Reading Total. Mean gains for the experimental story-writing classroom fell between the IBM and control mean gains, differing significantly from neither. When the sexes were considered separately, gains for the girls were greater in the IBM classroom; however, gains for boys in both writing groups were greater than for those in the control group, suggesting that structured writing time may be a viable alternative to the technology-based program for producing gains in reading abilities. The amount of time scheduled for structured writing appeared to be an important factor.

Introduction

Reading and writing are no longer viewed as discrete and sequential language entities, but as reciprocal processes: having been compared as two sides of the same coin (Tierney, 1985). Traditionally, children were taught first to read and then to write. However learning to write may be easier than learning to read (Chomsky, 1971; Durkin, 1979.) In writing, the message comes from within the child, growing out of personal experiences. It requires active involvement in sounding out and forming letters and words to encode a message. In reading, the language and meaning of the author must be interpreted by the child, thus complicating the process.

Many facets of the reading/writing connection have been investigated by researchers in the New Hampshire Writing Project since 1980. Lucy Calkins (1983) stated that writing can generate an attitude toward reading that is rarely conveyed through reading programs. Writing time involves reading and develops and reinforces skills traditionally viewed as reading skills: she noted that the children she observed writing were learning to differientiate main ideas and details, to adjust and defend sequences to infer, to recognize cause and effect. and to develop and challenge conclusions. Marilyn Boutwell (1983) and Ruth Hubbard (1985), in case study observations of third grade and first grade children, reported that children were able to transfer reading and writing strategies as they learned, simultaneously, to become readers and writers.

In a review of literature on the relationship between reading and writing in elementary classrooms, Sandra Stotsky (1983) found that reading and writing are closely related and influence each other. In those studies which used writing to improve reading comprehension, there were significant gains. (Additional support for the importance of writing as related to reading is found in Appendix A, Review of Selected Literature.)

The Writing to Read program, developed by John Henry Martin and produced by IBM, is a multisensory writing/reading program for children in kindergarten and first grade which utilizes computers with voice output and IBM Selectric typewriters. The goal of the program is ....to lead students to the discovery that they can write anything they can say and read anything they can write." (Martin, 1985.) The Educational Testing Service (ETS) evaluated Writing to Read during a two-year National Demonstration Project and found that the Writing to Read children wrote better than comparison groups as well as progressing faster than the national norm samples on standardized reading tests (1984.)

Research, then, supports the notion that children who write improve in reading abilities and supports the effectiveness of the Writing to Read program over traditional classroom reading instruction without this supplement. Since the IBM technology is not available to all schools, we have asked: will increased writing activity without using the technology and the structured sound-symbol program of the IBM Writing to Read program produce similar gains in reading? We explored this question in a

ministudy comparing pre and posttest reading achievement scores of first grade children in (a) a classroom using the Writing to Read program, (b) a classroom enriched by story writing, and (c) a classroom using traditional curriculum.

Methods and Procedures

Permission to conduct the study was granted by the School District 60 Research Committee and the Director of Reading and Language Arts, Eleanor Albo, in September, 1986. The district designated three first grade classrooms as participants in the study. They included a Writing to Read classroom, an experimental writing classroom in which no computers were used, and a control classroom. Teachers of all groups were highly qualified, holding masters degrees and having at least eight years teaching experience. Each teacher was evaluated as highly effective by district administrators.

We met with principals and teachers of each group to ascertain their willingness to participate. During individual sessions, we explained procedures to be followed. The teacher of the Writing to Read group was directed to continue according to that program, and additional patterned story books were recommended. The structured story writing group was directed to follow a model of prewriting, writing, and revision (Graves, 1983); again, patterned story books were recommended. During the individual sessions, ideas were clarified and expanded. The teacher of the control classroom was given no suggestions for writing, but was asked to follow the regular curriculum. Writing

was neither encouraged nor discouraged.

All classrooms included basal reading and related activities in their curriculums. In addition, all teachers read aloud to the children at least once a day and encouraged children's reading of library and trade books. Differences among the groups are described below.

IBM Write to Read (IBM)

This classroom was located in a lower middle income socioeconomic neighborhood, the school having qualified as a Chapter I school until the fall of 1986. Since this was the second year for the school to serve in an IBM pilot program, most of the children had had kindergarten experience in Writing to Read. The Macmillan basal reader and workbooks were used in the classroom. In addition to listening to and reading many trade books, each child read orally to a fourth-grade tutor for fifteen minutes a day during the months of March and April.

These children attended a separate lab, equipped by IBM, for one hour a day, five days a week. Children rotated among five centers: the Computer Center for instruction and drill on letter sounds and linguistic word patterns; a Work Journal Center with workbooks to reinforce word patterns; a Make a Word Center with concrete materials and letters; a Listening Library Center with audiocassette players and tape recorded books; and the Writing/typing Center, equipped with IBM typewriters with word-processing features. The lab also included a "writing table" with an erasable surface and a reading area which contained chairs and a large number of trade books. At the Computer

Center, children initially learned a consistent phonemic spelling system for the 42 phonemes and were encouraged to spell phonetically until they saw the word spelled conventionally. When they learned the correct spelling, they were expected to use it. Most stories were original, but the teacher often read patterned picture books and discussed them as a prewriting activity before the children went to the lab. (See Appendix B.)

In addition to the fourth-grade tutors for reading, this teacher had some assistance in the classroom from a USC student, and there was an occasional volunteer assistant in the writing lab.

Scheduled Story Writing (Story-Writing)

This school was located in a lower socioeconomic neighborhood which has always qualified as a Chapter I school. While using the Economy basal reader, the teacher did not use workbooks but supplemented the basal program with center activities including listening, word-making, writing, and limited use of worksheets. Trade books were considered more important than the basal, and there was a very large collection of attractively displayed easy-to-read trade books. These were sent home with children each afternoon throughout the year to be read by parents to the children and, later in the year by the children to parents. After reading a book at home, a child reread the story to a volunteer the following day.

Although writing had been a regular part of this teacher's curriculum for many years, children in this study began writing in October rather than at mid-year as previous classes had done. Approximately four hours a week were spent in writing instruction including prewriting, writing, and postwriting activities. Prewriting activities included motivational story starters or listening to the teacher's oral reading of pattern books followed by brainstorming, discussion, and idea sharing. Children also chose pictures or holiday experiences as writing stimuli. After writing, children shared their stories with an audience, and questions for clarification and expansion were asked by other children and by the teacher. Children were encouraged to spell phonetically until learning the correct form. In addition, writing was integrated with the health book stories and patterned after statements about the senses. (See Appendix C.)

In addition to the volunteer parent who listened to children read, this teacher had assistance from (and responsibility for) a USC student teacher.

Control

This classroom was also located in a lower socioeconomic neighborhood, and the school also has qualified for Chapter I since the inception of the program. The Control classroom followed a traditional reading curriculum using the Ginn series basal reader, accompanying workbooks, and related activities. The classroom also provided easy-to-read books, and the teacher encouraged reading by rewarding children who read fifty books during the year.

The teacher reported that children in this classroom wrote for approximately one hour twice a week. She often read stories to the children as a prewriting activity.

This teacher was assisted during reading by parent volunteers throughout the year and had a teacher's aide for forty-five minutes, two or three times a week. While on leave for six weeks, she was replaced by an equally qualified and competent teacher. recently retired from full-time teaching.

Role of the University

The University provided materials for implementing the study. We made an effort to supply the Story-Writing Group some non-technical materials similar to those provided by Writing to Read to the IBM Group: the Story-Writing Group was given Story Box in the Classroom, Stage 1, a collection of very easy books to be used as story starters, and an erasable writing board, similar to the writing table in the IBM lab. Materials for both writing groups included audiotapes from the Colorado Writing Conference and the University of Northern Colorado Reading Conference of model first grade writing programs and ten patterned picture books with lesson plans. (See Appendix D.) Writing materials such as date stamps, paper colored folders, and markers were also provided. Test booklets were provided for the pretests and then were scored. The conference audiotapes and picture books were given to the teacher of the control classroom after completion of the study.

During the study we made approximately two visits a month to the writing classrooms and one visit a month to the control

classroom. The purpose of the visits was to encourage the teachers, monitor progress, deliver materials. collect tests and writing samples, and in the writing groups, to help with writing and listen to children's reading of their stories.

Assessment and Analysis of Data

Pretests and posttests included the four reading subtests from the SRA Survey of Basic Skills, Level 21, (1986) and were administered by the classroom teachers. The subtests are Letters and Sounds, Listening Comprehension, Reading Vocabulary, and Reading Comprehension. Scores from the four subtests are summed to produce a Reading Total score. Pretests were administered during the week of October 16, 1986, and posttests were administered the week of April 13, 1987, to all three classrooms.

The Director of Research for District 60 requested that, inasmuch as the school where the Story-Writing classroom was located has a pre-first program, students in the other groups who scored lower on the pretest than the lowest score in the Story-Writing group should not be included in the evaluation data. Accordingly, scores from one boy in the Control group were omitted from analysis. Data for sixty four children who completed both pretests and posttests were considered: twenty-one children, including eleven boys and ten girls, were in the IBM Group; twenty-one children, including twelve boys and nine girls were in the Story-Writing Group; and twenty-two children, including nine boys and thirteen girls, were in the Control Group. The distribution is found in Table 1.

Differences among and between groups were investigated using SPSSX computer library programs. Initial equivalence of the groups in terms of age and pretest scores was investigated using analyses of variance. For age, differences between group means for the Story-Writing and Control Groups were significant ($p <$

Story-Writing Group may reflect the use of the pre-first program in that school. The pretest Reading Total group means, found in Table 4, did not significantly differ among the groups.

Posttest Reading Total group means are found in Table 5. Gain scores were computed for each child (posttest minus pretest). One-way analyses of variance were used to compare the gain scores for each of the four subtests and the total. When the F-ratio was greater than the critical value for a .05 level test, the differences between group means were considered by the least-significant difference (LSD) method of a posteriori comparison. Where significant differences were found, gain scores for boys and for girls were considered separately among the groups.

Results

Group means and standard deviations for gain scores are shown in Table 6, with associated F-probabilities from the analyses of variance. For Reading Comprehension and for Reading Total, the mean gains for the IBM Group were significantly greater than those for the Control Group ($p < .01$ and p .05 respectively), as shown in Tables 7 and 8.

Table 1

Distribution of Total Sample N: Group and Sex

Groups	IBM	Story-Writing	Control	Total
Male	11	12	9	32
Female	10	9	13	32
Total	21	21	22	64

Pearson's R Value 0.13346 Significance 0.1465

Table 2

Distribution of Total Sample N: Age in Months

Groups	Mean	Range	Standard Deviation	ANOVA F-prob
				.0498
IBM	80.67	74 - 87	3.50	
Story-Writing	82.29	75 - 93	4.82	
Control	79.23	75 - 90	3.54	
Total	80.70	74 - 93	4.13	

Table 3

Group by Age in Months
Summary of LSD Tests on Differences between Pairs of Means

Groups	IBM	Story-Writing	Control
Means	80.67	82.29	79.23
IBM		1.62	1.44
Story-Writing			3.06*

*p < .05

Table 4

SRA Pretest Reading Total
Means, Ranges and Standard Deviations

Groups	Mean	Range	Standard Deviation	ANOVA F-prob
				.9633 (NS)
IBM	45.38	28 - 65	9.69	
Story-Writing	44.48	27 - 73	10.41	
Control	45.00	29 - 79	12.01	
Total	44.95	27 - 79	10.60	

Table 5

SRA Posttest Reading Total
Means, Ranges and Standard Deviations

Groups	Mean	Range	Standard Deviation	ANOVA F-prob
				.0839
IBM	78.33	49 - 92	12.21	
Story-Writing	73.24	42 - 90	13.62	
Control	69.32	47 - 90	13.21	
Total	73.56	42 - 92	13.35	

Table 6

SRA Gain Scores for Reading Subtests and Reading Total: Means and Standard Deviations

	Mean	Standard Deviation	ANOVA F-prob
Letters and Sounds			.9256 (NS)
IBM	8.76	5.32	
Story-Writing	9.05	5.08	
Control	8.50	2.99	
Listen. Comprehension			.9726 (NS)
IBM	3.14	2.31	
Story-Writing	3.24	2.81	
Control	3.05	2.87	
Vocabulary			.2345 (NS)
IBM	9.71	4.00	
Story-Writing	8.52	4.09	
Control	7.45	4.74	
Read. Comprehension			.0121
IBM	11.33	6.82	
Story-Writing	7.95	5.78	
Control	5.32	6.57	
Reading Total			.0520
IBM	32.95	11.16	
Story-Writing	28.76	12.17	
Control	24.32	10.74	

Table 7

Group by SRA Reading Comprehension Gain Scores
Summary of LSD Tests on Differences between Pairs of Means

Groups	IBM	Story-Writing	Control
Means	11.33	7.95	5.32
IBM		3.38	6.01**
Story-Writing			1.91

**p < .01

Table 8

Group by SRA Reading Total Gain Scores
Summary of LSD Tests on Differences between Pairs of Means

Groups	IBM	Story-Writing	Control
Means	32.95	28.76	24.32
IBM		4.19	8.63*
Story-Writing			4.44

*p < .05

Table 9

SRA Gain Scores by Sex Reading Comprehension
Numbers, Means. and Standard Deviations

Group	n	Mean	Standard Deviation	ANOVA F-prob
Boys				.0410
IBM	11	11.36	7.39	
Story-Writing	12	10.33	5.31	
Control	9	3.78	7.03	
Girls				.0490
IBM	10	11.30	5.35	
Story-Writing	9	4.78	4.99	
Control	13	6.38	6.29	

Table 10

SRA Gain Scores by Sex: Reading Total
Numbers, Means. and Standard Deviations

Group	n	Mean	Standard Deviation	ANOVA F-prob
Boys				.2005 (NS)
IBM	11	30.91	12.98	
Story-Writing	12	33.75	10.81	
Control	9	23.67	14.26	
Girls				.0091
IBM	10	35.20	8.88	
Story-Writing	9	22.11	11.07	
Control	13	24.77	8.12	

Table 11

Boys: Group by SRA Reading Comprehension Gain Scores
Summary of LSD Tests on Differences between Pairs of Means

Groups	IBM	Story-Writing	Control
Means	11.36	10.33	3.78
IBM		1.03	7.58*
Story-Writing			6.55*

*P < .05

Table 12

Girls: Group by SRA Reading Comprehension Gain Scores
Summary of LSD Tests on Differences between Pairs of Means

Groups	IBM	Story-Writing	Control
Means	11.30	4.78	6.38
IBM		6.52*	4.92
Story-Writing			1.60

*p < .05

Table 13

Girls: Group by SRA Reading Total Gain Scores
Summary of LSD Tests on Differences between Pairs of Means

Groups	IBM	Story-Writing	Control
Means	35.20	22.11	24.77
IBM		13.09**	10.43*
Story-Writing			2.66

**p < .01
*p < .05

Reading Comprehension and Reading Total gain scores then were investigated separately for boys and girls, and group data are shown in Tables 9 and 10.

The results of LSD tests on mean gains in Reading Comprehension are found in Tables 11 and 12. For boys, mean gains in Reading Comprehension for both the IBM and the Story-Writing Groups were significantly greater than the mean gain for the Control Group ($p < .05$). For girls, the IBM Group's mean gain was significantly greater than that for the Story-Writing Group ($p > .05$).

Comparisons of Reading Total means for girls are found in Table 13. The IBM Group's mean gain was significantly greater than the mean gains for both the Story-Writing Group ($p < .01$) and the Control Group ($p < .05$).

Discussion

The results from this ministudy supported previous studies of the significant impact of IBM's Writing to Read Program on the reading abilities of children. Our hypothesis that regularly scheduled story writing would produce similar gains in reading abilities was only partially supported. When comparing whole groups in the three programs, we found a consistent trend for the Story-Writing Group's mean gains to be higher than those of the Control Group. Although the differences were not statistically significant, neither were the mean gains significantly different from those of the IBM Group.

The differences between the groups in Reading Comprehension

when only boys and only girls were considered were more surprising. While at a loss to interpret the lower mean gains for girls in the Story-Writing Group, we were heartened by the significantly higher mean gains for the boys in both the IBM and the Story-Writing Groups. Historically, boys do have more difficulty in learning to read than do girls. and this finding suggests that regularly scheduled writing, regardless of technology, may have increased their reading abilities.

The teachers of all three groups used similar methods for developing writing in their programs. When the study was initiated, we were unaware of the extent to which writing practices planned for the story-writing program were followed in the control classroom. Further, the original design for the study called for equal amounts of time to be used for writing by both writing groups. A primary difference observed among the classrooms was the amount of time spent in structured writing: five hours by the IBM Group, four hours by the Story-Writing Group and two hours by the Control Group. This difference suggested that the amount of scheduled writing time following practices described in this paper, was a factor in developing reading competence.

All findings from this ministudy must be interpreted with caution. First, the groups were small and when subdivided by sex, extremely small. Second, each of the teachers used a different basal series. More importantly, only one teacher per group participated, leaving individual teacher variables uncontrolled. The fact that the control classroom's teacher was

replaced by another one during her maternity leave was a confounding factor: even though the replacement was an outstanding teacher, the effects of the change on the children are unknown. The effects of having a student teacher in the story-writing classroom also are unknown. Next, the ceiling effect of using the SRA test designed only for one grade level may have suppressed some true differences between groups. Finally, most of the children in the IBM Writing to Read group had participated in this program during kindergarten. Although this kindergarten experience was not reflected in the SRA pre-test scores one of the conclusions from the 1984 ETS validation study was that kindergarten Writing to Read students gain a significant advantage in reading ability over non-Writing to Read students.

Because of the consistent positive trend of the Story-Writing Group's gains, and because the differences between the two writing group's scores may be related to time spent in writing rather than to the use or non-use of technology, we believe these practices merit wider application and further investigation. More comprehensive studies, involving more classrooms and using open-ended measures of gain which would control for factors of (a) sample size, (b) the ceiling effect (c) teacher and curriculum differences, (d) the amount of time committed to writing, and (e) the kind and amount of kindergarten writing/reading experience are recommended.

REFERENCES

Asbell, Bernard. "Writer's Worshop At Age 5", New York Times, Ed. Supplement.

Boutwell, Marilyn A. "Reading and Writing Process: A Reciprocal Agreement", Language Arts, 60, September, 1983: 723-730.

Boyer,Ernest. The Carnegie Report on American High Schools, 1983.

Cafone, Harold and Gerry Palmer. "Reading and Writing: Tightening the Connection," Early Years, May, 1985.

Calkins, Lucy McCormick. "Make the Reading-Writing Connection," Learning, September, 1983, pp. 82-86.

Chall, Jeanne S. and Vicki Jacobs. "Writing and Reading in Elementary Grades: Developmental Trends Among Low SES Children,"Language Arts, Vol. 60, 5, May, 1983: 617-626.

Chomsky, Carol. "Write First, Read Later," Childhood Education, Vol 47, March, 1971.

Clay, Marie M. What Did I Write? Heinnemann Books, Exeter, N. H., 1979.

Dobson, Lee N. "Learn to Read by Writing", Teaching Exceptional Children, Fall, 1985, pp. 30-36.

De Ford, Diane E. "Literacy: Reading, Writing, and Other Essentials", Language Arts, 58, September, 1981: 652-659.

Dudley-Marling, Curtis C. "Microcumputers: Reading and Writing: Alternatives to Drill and Practice", The Reading Teacher, 38, January, 1985: 388-391.

Durkin, Delores. "What Classroom Questions Reveal About Reading Comprehension", Reading Research Quarterly, 14, 1979: 481-553.

_____. Children Who Read Early, Teacher's College Press, Columbia University, N. Y., 1966.

Graves, Donald. Writing: Teachers and Children at Work, Heinnemann Educational Books, Exeter, N.H., 1983.

Hansen, Jane/Thomas Newkirk/ Donald Graves. Breaking Ground: Teachers Relate Reading and Writing in the Elementary School, Heinemann, 1985.

Hennings, Dorothy. Communication in Action", 3rd Ed., Houghton Mifflin, Boston, 1986.

Hubbard, Ruth. "How Kids Can Bring Their Stories to Life and Improve Their Reading Skills," Learning, April/ May, 1985, pp. 50-52.

_____. "Write-and-Tell", Language Arts, 62, October, 1985, pp.624-632.

Martin, J. H. Writing to Read, (Pamphlet 409), International Business Machines Corporation, New Jersey:

Mills, E. "Children's Literature and Teaching Written Composition", Elementary English, 51, 1974: 971-973.

NewKirk, Thomas, "The Hedgehog or the Fox: The Dilemma of Writing Development", Language Arts, Vol. 62, October, 1985, pp. 593-604.

Newman, Judith. "Online: Reading, Writing, and Computers," Language Arts, Volume 61, No. 7, November, 1984, pp.

_____. "Language Learning and Computers", Language Arts, 61, September, 1984: 494-497.

Rosegrant, Teresa. "Using the Microcomputer as a Tool for Learning to Read and Write," Journal of Learning Disabilities, 18, February, 1985.

SPSS X Users's Guide, 2nd Ed., SPSS Inc., 1986.
SRA Survey of Basic Skills, Science Research Associates, Chicago, 1986.

Stotsky, Sandra, "Research on Reading/Writing Relationships," Language Arts 60, May, 1983: 627-644.

Smith, Frank. "Reading Like A Writer", Language Arts, 60, May, 1983: 568-571.

Tierney, Robert and Pearson. "Toward a Composing Model of Reading", Language Arts, Vol. 60, 5, May, 1983.

Tway, Eileen. Writing is Reading NCTE, 1985.

Wheeler, Fay. "Can the Word Processor Help the Writing Process?" Learning, March 1985.

Whitmer, Jean, "Does Writing Improve Reading Comprehension of Fourth and Fifth Grade Remedial Readers?", Unpublished Paper, 1985.

Wittrock, M. C." Writing and the Teaching of Reading", Language Arts, 60, May 1983: 600-607.

Appendix A

Review of Literature

REVIEW OF LITERATURE

The review of literature sought answers to two reading/writing related questions: Do children learn to read by writing? and Do computers and word processors enhance reading and writing for elementary children?

Do Children Learn to Read by Writing?

The idea of learning to read by writing is not new. Marie Montessori, at the turn of the century, found that children were naturally inclined to write before they learned to read and that writing taught them to read. Delores Durkin (1966) likewise, studied children who learned to read early. She found that many of them learned to read through scribbling. Scribbling progressed to copying objects, to copying letters, to copying words. As a result, children were able to read the words they wrote. Children who learned to read in this manner were known as "scribble kids" or "paper and pencil" kids.

Because preschool children are developmentally able to write before they are able to read, Carol Chomsky (1971)

also suggested that writing should be taught as an aid to learning to read. Her advice is that children write first and then read. Chomsky advocated that children write after hearing story books read as models, since it is from listening to and reading stories which have been written by successful writers, that children learn story structure, characterization, and expressive vocabulary.

Jeanne Chall (1983) assessed writing and reading trends among low SES children in elementary grades and found consistent trends in reading and writing development. Results revealed that reading and writing tended to be closely related. Both reading and writing abilities were positively related to language scores. Chall concluded that there is a definite need for more emphasis on writing for these children in that writing instruction may enhance both language and reading.

Lee Dobson observed eight first graders in Vancouver, British Columbia, who had made little progress in learning to read during their first five months in a regular classroom. For the remainder of the year these children were sent to a lab where they were involved in writing for 30 minutes a day. Teachers asked questions to help the children communicate in writing as they did in oral expression. In this way simple sentences were expanded and

new words were added to help them communicate meanings more clearly. After writing, the children read their stories aloud to the teacher. Dobson reported that the writing experiences enhanced self concept and self-expression, as well as familiarizing them with the concepts of print necessary for learning to read. At the end of the year the remedial writing group was more advanced than their classmates in writing, vocabulary, and reading ability.

Eileen Tway (1985) studied children being taught to read and write simultaneously as they read their own writing and writings of successful authors of children's literature. Tway's recommendations are that children should be encouraged to write from the preschool years on, and that reading and writing should be taught together in the elementary schools.

Mills (1974), in a four year longitudinal study, found that fourth grade children who used children's literature as a prewriting activity scored significantly higher in their free writing than the control group who did not have this experience, thereby relating reading to writing success.

Marie Clay (1979), reading/writing researcher from New Zealand noted that the poor reader tends to specialize in words or sounds, ignoring details by which letters are distinguished, as well as the meaning. Clay stated that

writing may help such a reader overcome these deficiencies as s/he builds letters into words, words into phrases, and phrases into sentences and stories. Writing helps children come to grips with the intricies of written language. Clay found that for this reason, writing plays a significant role in early reading and in remedial reading instruction in New Zealand.

Both reading and writing have been traditionally taught by sub skills approaches with time spent on drills and workbook activities being greater than time spent in reading and writing. Graves (1983) advocated teaching reading and writing together in contrast to writing instruction as a separate subject. He found that writing usually consisted of workbook exercises, pennmanship, vocabulary, grammar, and mechanics of instruction. He concluded that the problem with writing instruction is that there is no writing.

Graves and Murray (1980) found that reading scores tend to improve when large amounts of time are taken from formal reading programs and devoted to writing. Students who write must read and reread their rough drafts to insure clarity. Students who write on a given topic also need to read for information in order to write. This provides a purpose for reading rather than to read merely to answer questions at the end of the chapter.

Diane DeFord (1981), also, recommended that children should be taught to read by a whole language approach which integrates listening, speaking, reading, and writing. Deford investigated the effects of teaching first graders by phonics, skills, and whole language approaches. She found a supportive, interactive relationship between reading and writing processes. She also concluded that programs which isolate reading instruction from writing or focus on isolated skills are self-defeating. Current research in both reading and writing is moving from isolated sub-skills to a recognition of the importance of an interrelationship of the skills within both communication processes.

Do Word Processors and Computers Enhance Writing for Elementary Children?

In two Language Arts articles (1984) Judith Newman described computerized reading programs of the sixties and seventies as naive, since these programs were glorified workbooks, consisting of pages of animated drill and practice. Most computer software today is still based on a skills approach to teaching reading. In contrast, the word processor focuses on the process of writing. When computers are used as word processors, writers must be in control of the decision making themselves. The writer chooses what to write about and how to say it. In summary, Newman observed

that the computer, when used to enhance writing, does not depersonalize learning, but actually helps to personalize it through individualization.

Frank Smith (1985), also recommended that computers can best aid reading when they are used as a tool for writing. Smith criticized of computers when used as drill on discrete reading and writing skills. Instead he advocates the use of computers to speed and facilitate the creative use of written language. Word processors combine the ease and speed of the typewriter with the flexibility of a pencil. Smith stated that there is no easier way to get ideas into written language, to erase, revise, move things around, edit, store, and recover than by using word processors.

Fay Wheeler (1985) found that word processing programs help students improve their writing at least as early as fourth grade. Two necessary conditions are: First plan for adequate access to the computer. Second, emphasize the process of writing in a meaningful context. Word processors can facilitate not only mechanics of writing, but also the process as a whole. The technology and the writing reinforce one another.

Kleinman and Humphrey (1982) found that unmotivated learning disabled children ages seven to sixteen began to

write enthusiastically when permitted to use word processors. Dorothy Hennings (1981) noted that word processors were effective tools in the language experience approach to teaching reading and writing, encouraging children to write longer stories and to revise more.

Dudley-Marling (1985) observed that many children are reluctant to write because copying and editing are tedious tasks. Word processing makes editing easy . Text can be corrected, inserted, deleted, or moved about with the touch of a key. Since corrections can be made so easily, students are freed from their concern to get it right the first time. Dudley-Marling concluded that word processors may be the most useful application of microcumputers to written language instruction. When used as toools like pencils and typewriters, they may improve reading and writing instruction. But when used for drill and practice, they provide only more of the same.

Jean Whitmer (1985) compared fourth and fifth grade Chapter 1 children who wrote for ten weeks, with and without computers, in lieu of reading skills. The children who wrote without the aid of the word processors scored significantly better in reading comprehension than those who used computers. The differences may have been due to lack of sufficient time periods and adequate keyboard training.

The "Write to Read Program" authored by Dr. John Henry Martin, is a computerized reading/writing program in which kindergartners and first graders are taught to read using word processors and typewriters. The Educational Testing Service concluded that "Writing to Read" is an effective educational program. ETS evaluated 3,210 students who used "Write to Read" and compared them with a control group who used traditional reading methods. The "Write to Read" children wrote better than comparison groups as well as progressing faster than the national norm samples on standardized reading tests. The "Write to Read" program centers on the formation of letters and words, phonetic spelling, structured use of word processors and typewriters, and creative expression of written ideas.

Teresa Rosegrant (1985) reported a reading and writing project using the word processor with twelve learning disabled children from ages six to ten. None of the children could read above first grade level, several did not know the alphabet, and some knew fewer than ten sight words. Handwriting samples averaged only three lines in length. Children felt embarrassed about the appearance of their riting and had experienced failure which resulted in a lack of motivation necessary for learning to read.

Rosengrant set up a word-processing program with a built-in speech synthesizer. When children typed in text,

all or part of it could be read back to them, enabling children to edit their own stories. All of these children made gains of at least one year in reading and writing achievement during the six month project. Writing samples also improved in choice of words, sentence length, and appearance of writing. Rosegrant identified several factors to support use of computers in teaching reading and writing. The word processor provides several learning modes: motor (typing), visual (reading text), and auditory (hearing the text read back). The computer also lowered risk of errors, and children had a high degree of control over the reading and writing tasks. Children decided what they wanted to do and then gave the commands, which served as a motivation factor.

Appendix B

Sample Writing from the IBM Writing to Read Classroom

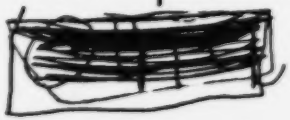
Sarah
October 23, 1986

Sarah cat Dog Fish

the cat toaw
the Catto aw oc

thecat took a wokto the dog

oct 23

The Cat and the Dog
Go To The house The cat
and The FisH Go to the
MOM. Cat DOG FisH LaMB
SUN vase Snake. back Love
Scott CAT Dog vase Snake.
Sarah Neidher The  Cat.
can and Dog FisH Sun Snake
vase! Love Sarah
Mrs PhiLLiPS 1-13

38

39

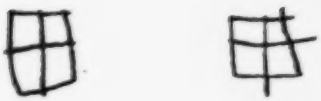
Sarah
November 3, 1986

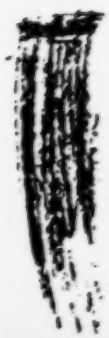
Nov. 3

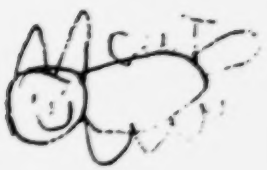
Sarah
January 9, 1987

sarah
the lettel red hen the pig and the cat and the frog
and tnemouse and the cow wood not help the lettel
red hen the anumls dont wont to help her
jan 9 1987

!







Sarah
January 27, 1987

t

sarah

the cat and the dog

the cat and the dog weure good frends
until thy did not like e chuth r
any more and the dog wuse chaseg the
cat and then the old gramoe
came out side to wepe them

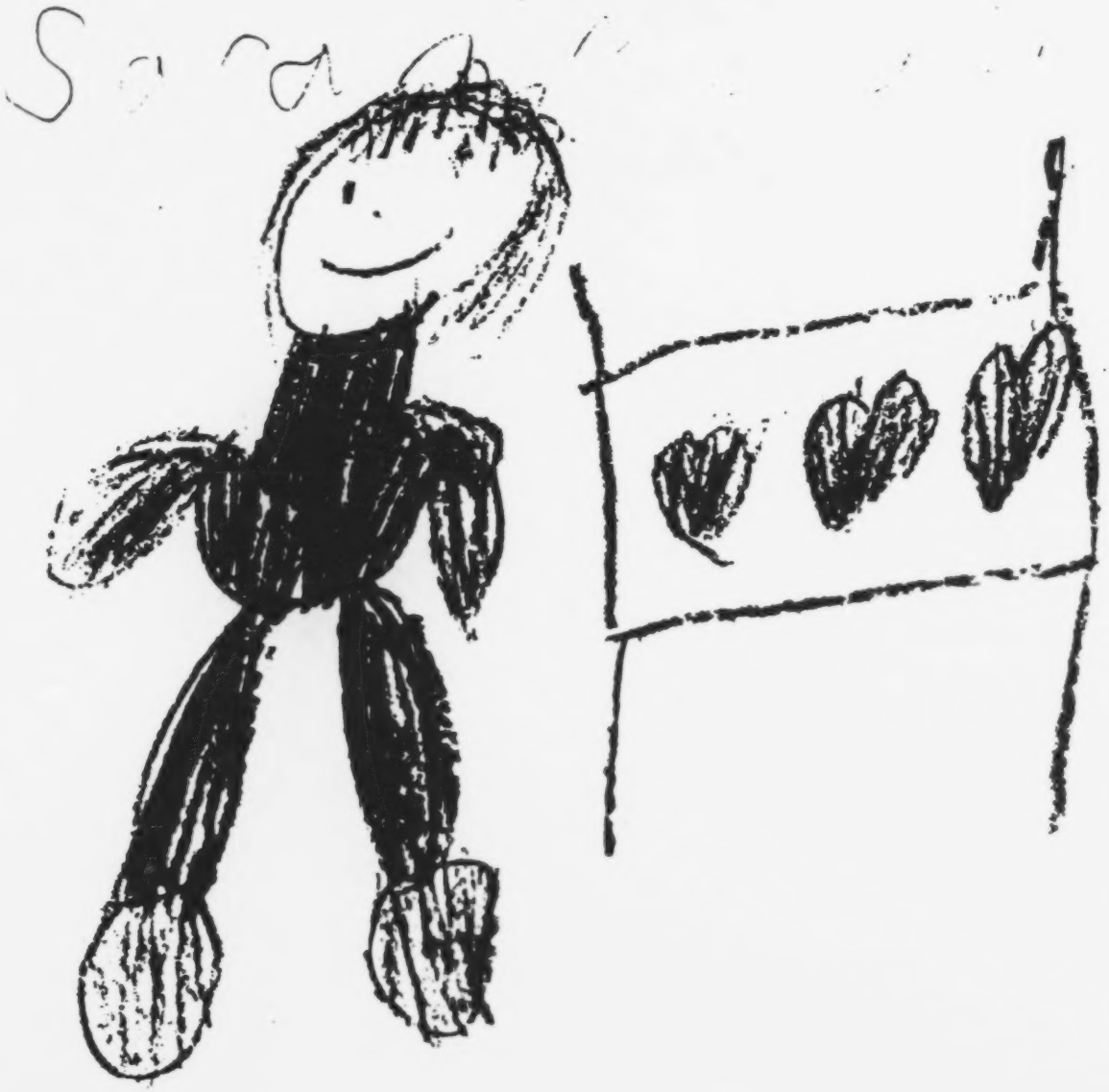
Jan 27 1987

Sarah
February 12, 1987

valintines day

feb 12 1987

I like valintines day wene we get to eat lots of kandy ule the toym and wene we eat kandy it makes me get seke sume tims



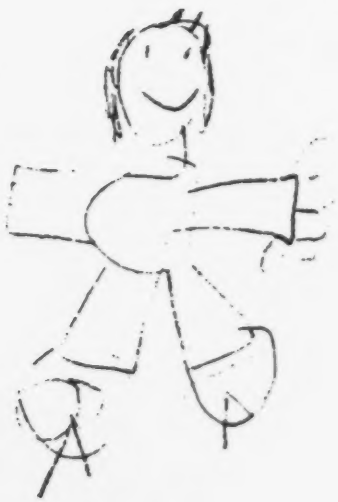
Sarah SP. Sarah
March 13, 1987

sarah

march 13 1987,

writing to read ··

Ilike witing to read becus you lern to read and writ
and you can tipe and you can larn to spele wrdse too,
and you lison to storys and you play gamss.
but I like writingtoread most of oleand after you tipe
you drole a picsher and color it too,
and I like writing to read most of ole.
the end



Now I can count up to
199. and I can read
and I can color better
and I can ride my
bike better too.
and I can write better
too and I can do a
frog stande better too

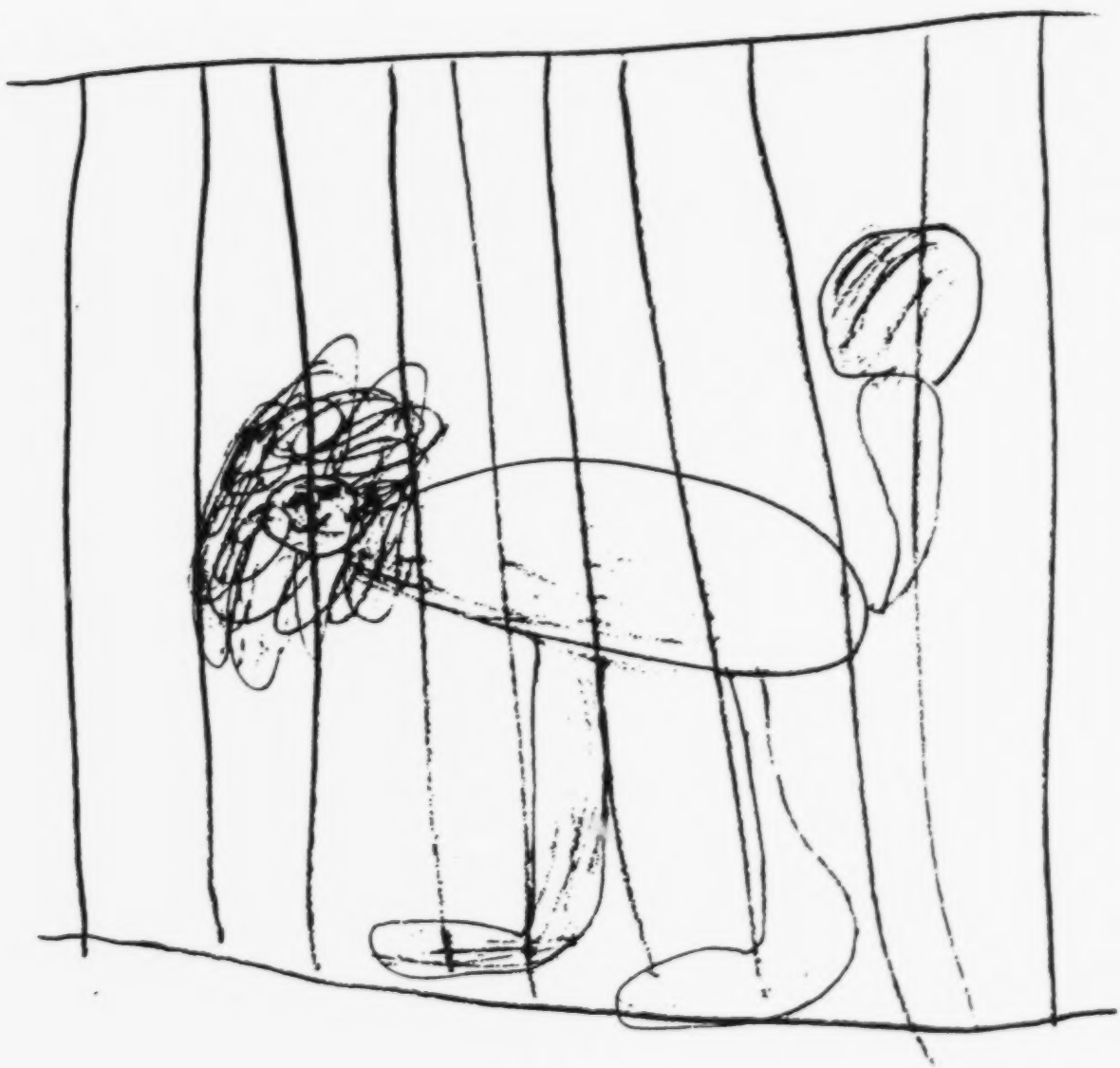
Sarah
May 4, 1987

And I can do a head Stande better too.

Sarah

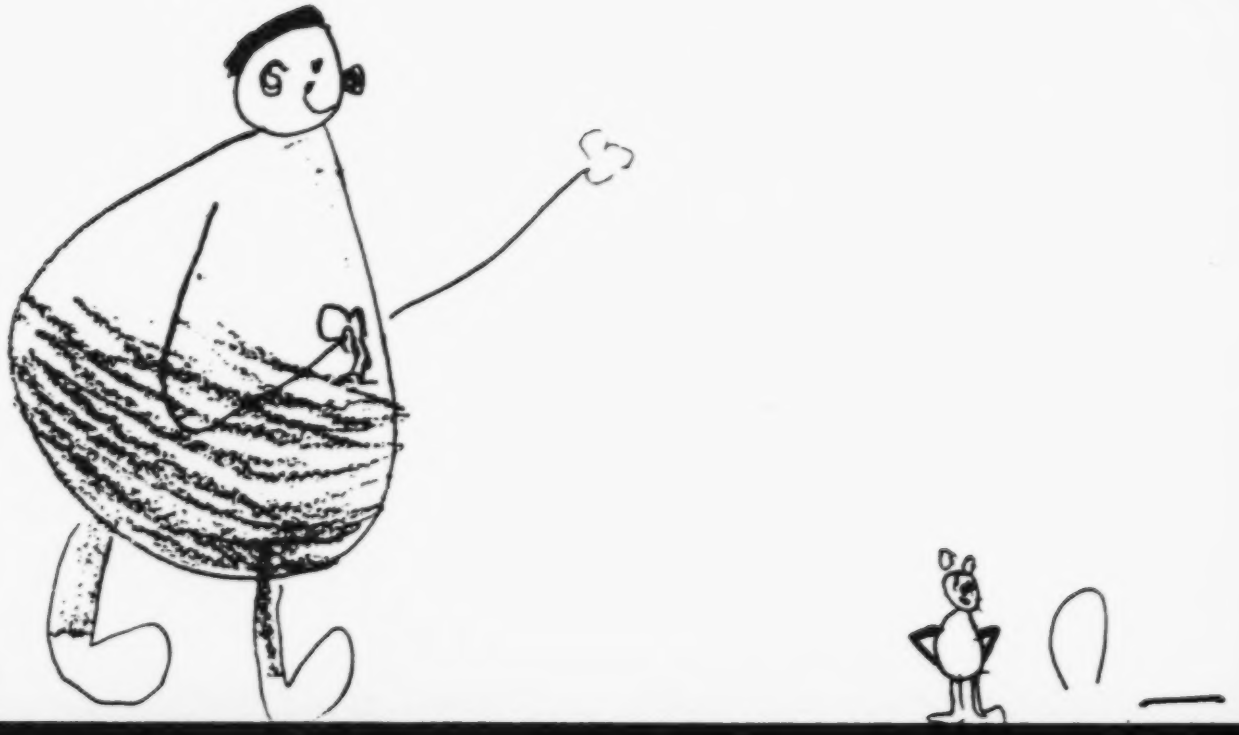
Sarah
May 4, 1987
(continued)

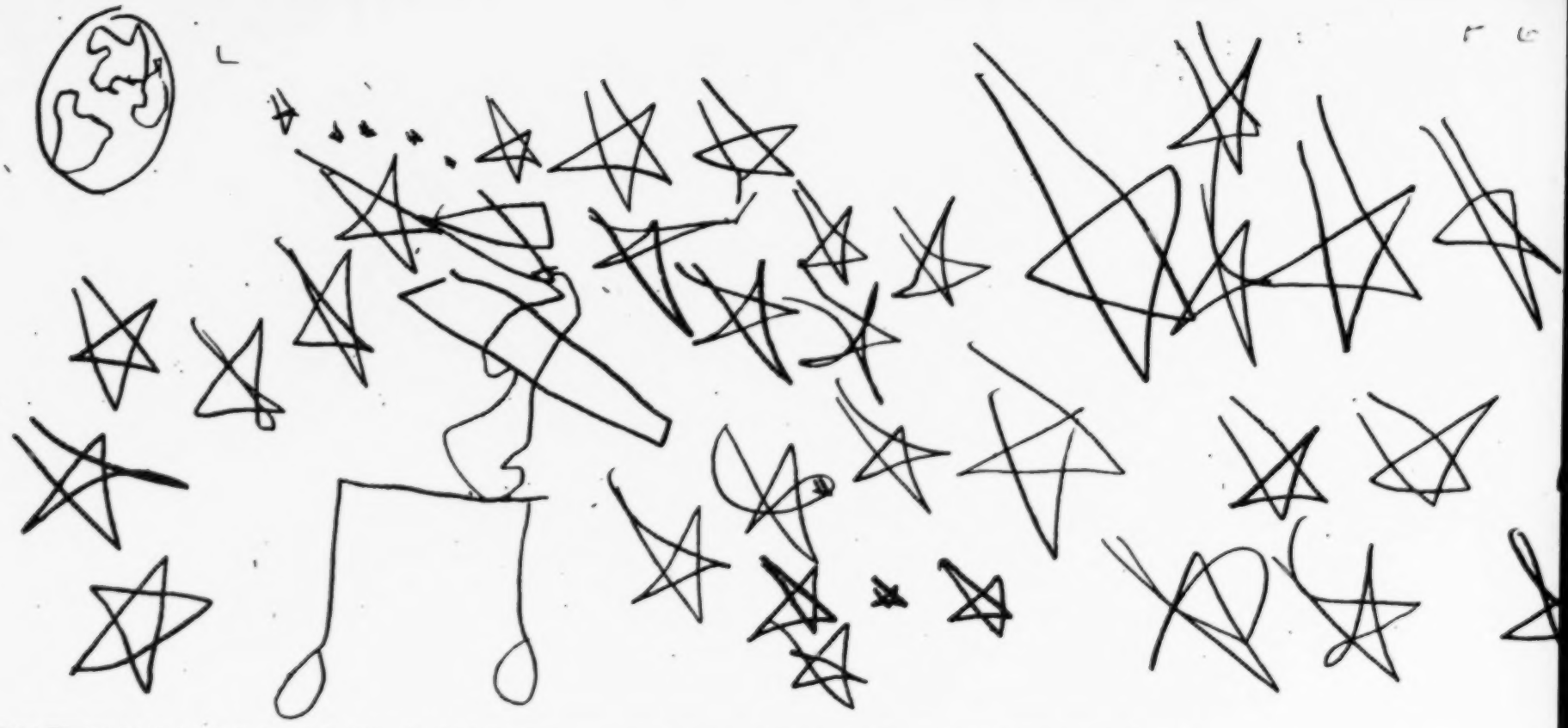
Stewart The Zoo Is Fun P Cuz Ther R Lins (Oct.) 30



The rat is fun to chays. P ckusz . It Runsz
In to the Huol Thet It mayd in Thewoll

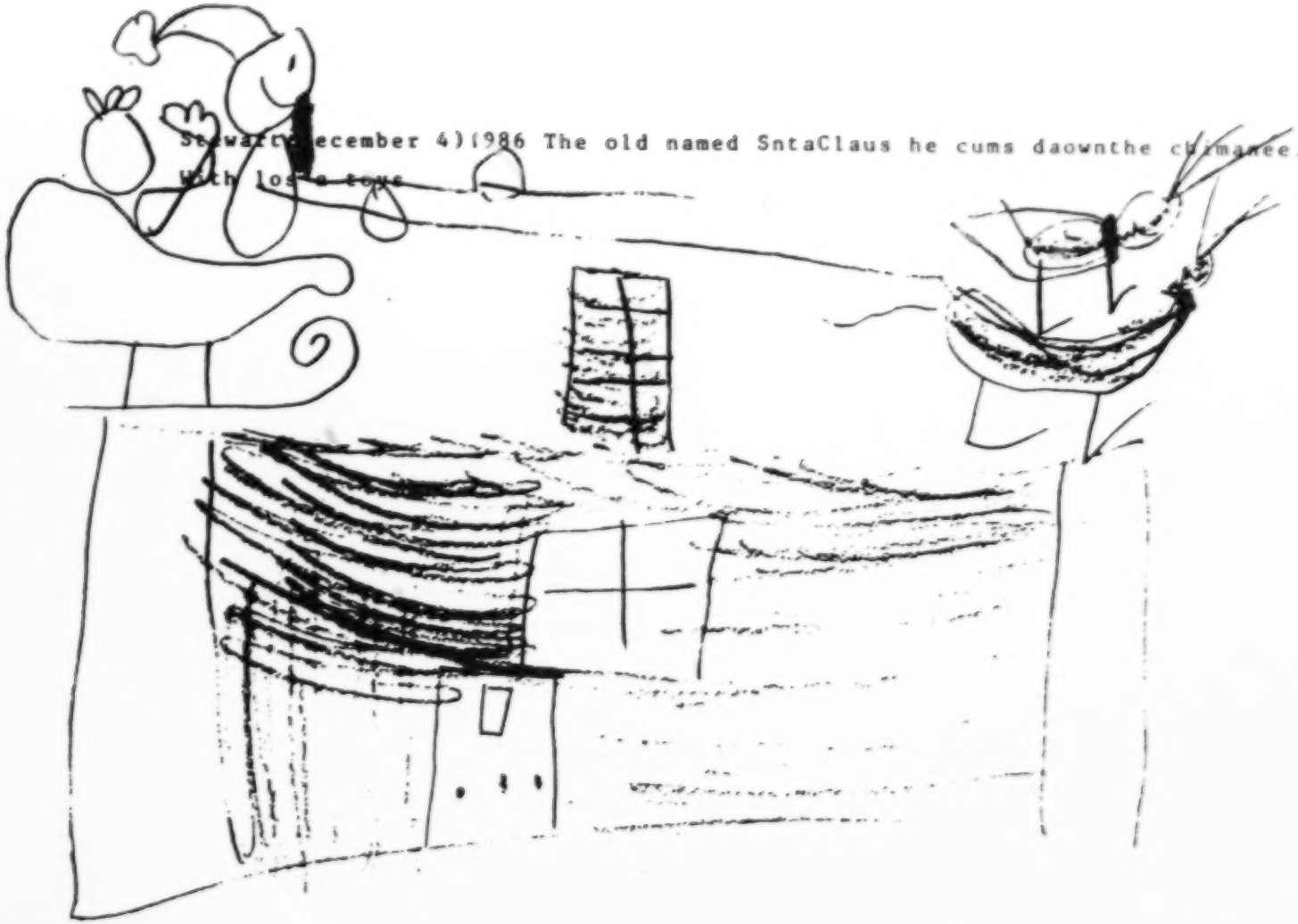
Stewart



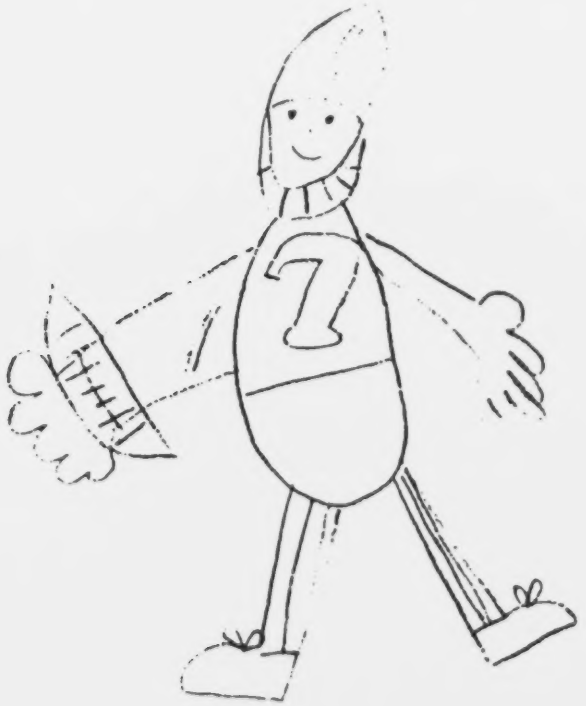


The Planetarium is fun. I see I can see the stars. And the moon and the sun. Stewart.

Stewart
November 13 1986


Stewart December 4)1986 The old named SntaClaus he cums daownthe chimanee.
With lots a toys

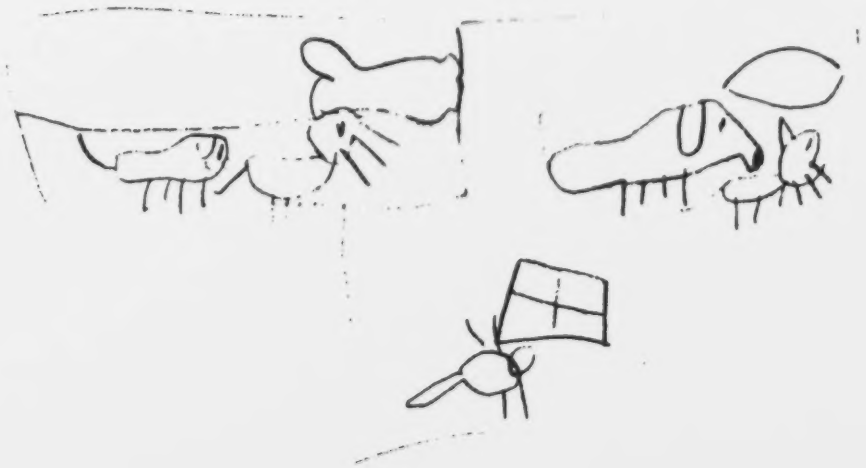
Stewart Jan 14)1987 Thebrocos one theswpr buol



] stewart jan 28 1987 The cat andthedog do not have enee .....

theg too dofinlee they snuck a bone..... .....

then thay snuck sum meetlofe the cat snuck out of thewindo

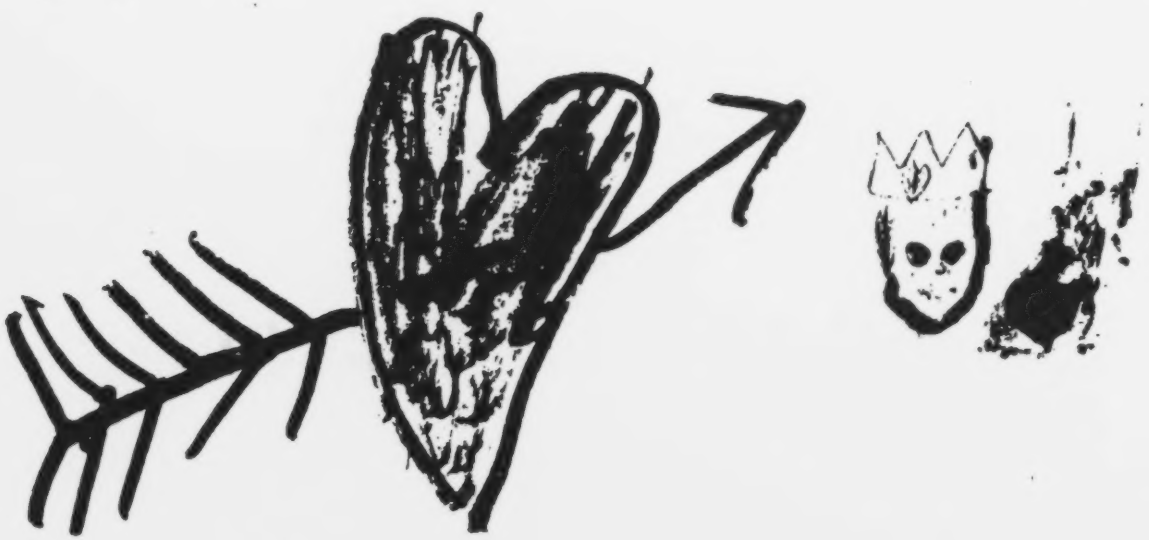


Stewart
January 28, 1987

Stewart feb 16) 1987 If I were a king I would finde a queen.

And meery her but it would have too be my grilfrend .

named sarah.thee end



Now I can Ride a 20 inch bike.

And I can jump higher too.

And I can rede bettur too.

-Can you?

"Yes"

Stewart

Stewart
May 4, 1987

Appendix C

Sample Writing from the Experimental Scheduled Story Writing Classroom

Christy
October 14, 1986

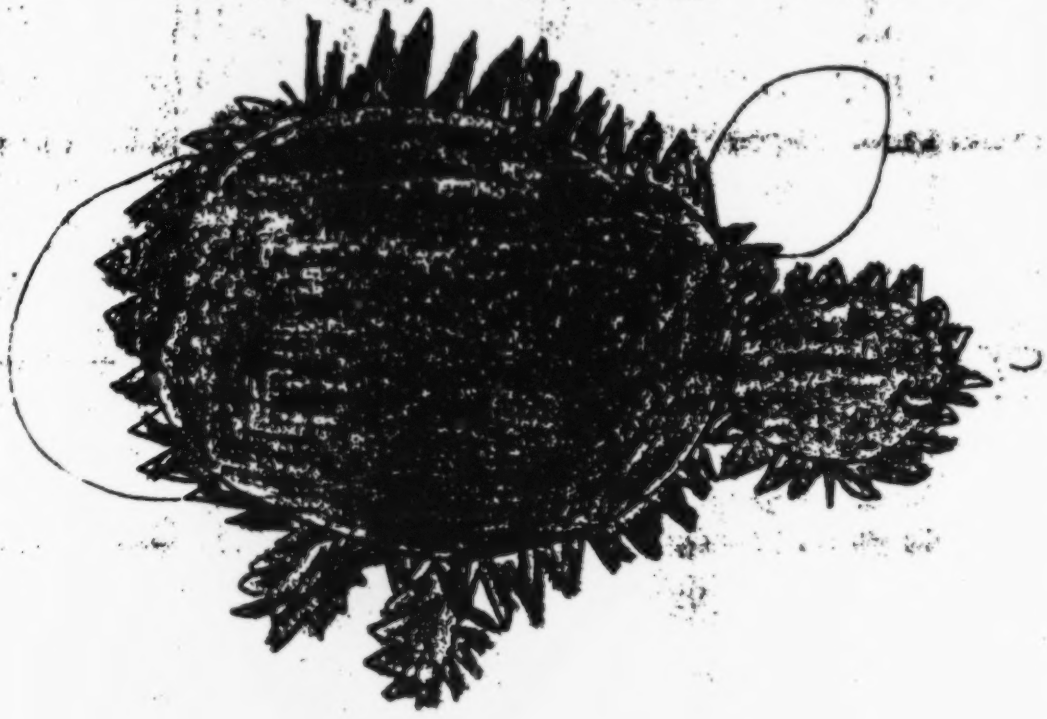
I Liag To fEy
Vae Much
I doiridow

I like to fly
Very much
I do I do

Christy
October 24, 1986

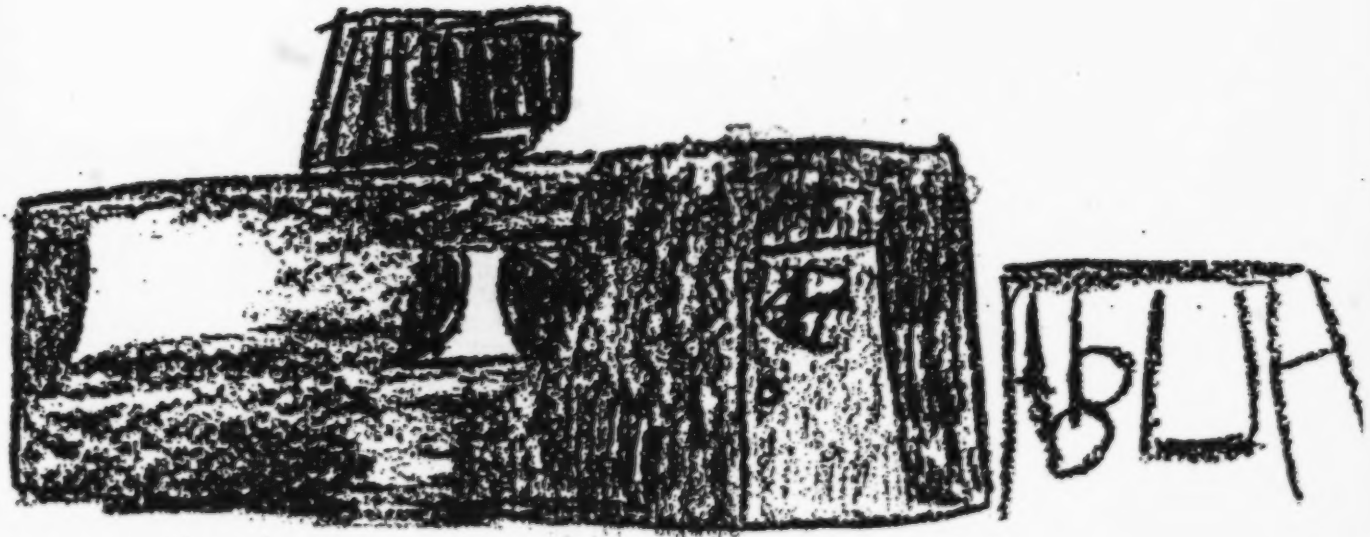
Christy 10/24

I Like The hedge hog
and I Like The
Trd
turtle



11/10

Christy
November 10, 1986



My Cat (trailer) is a big Cat (trailer)
and it is a vipe Prd (very pretty trailer)
I Luve My Cat (loved my trailer) vie Mui (very much)
and it Luve Me vie Mui (loves me very much)

The End

Christy 2/13

Love

Love is caring Kiren

Love is when win Sum one who

is Sad I give Tem them My Love

Love is one win Sum fel falls off their

Chair Tire But I Giv Tim them My

Love win Sum one falls fel

down dam I Giv Tim them My

Christy
February 13, 1987

3/15 Christy

When I'm cousins
wn om Happ my cnys can
in my Room and git it messe
Sometimes I'm always
sumt om tows mad
when my cousins come ovr
my hame and go in my
room and play wcwh my
with out asking
Hamsr wnth aot a$cn
all
ol The time my cousins

Christy
March 10, 1937

4/28 Christy favorite

my fribte times.

my fribte time is go too

The pork (park) r. and my oth.

firbte tig (thing) is Swimey.

and my oth thige. is fly

my kite. and my oth. firty

tig. is hava (having) fun. and my

oth fibt tirac is hvan a

Christy
April 28, 1987

Bath.

James
October 14, 1986

10/14/86

James

<r wsi jfoj DOD Bota

3LON

Curious George bought a balloon.

11/10

James
November 10, 1986

JWilley

house

my hoes is peach AND
brown have playground
braeN I cf A PLagaNeD
slide
It has A ziLIDe AND To
swings
zueGs AND it is FuN
apartments
To PLa iN mY eprmus
r FuN To PLa iN I have JUSTiN
he is my best friend
BaST FaN

1/30 James

I used to be afraid

of night mars. and the teche

airplanes people

aieplans. pepple. and dogs.

would

glue. I thot it wad get all

ovre me. I used to be afraid

of fire. and lions and fish

and boats becos I thot it

wed fall ovre and I we

James
January 30, 1987

drown
die and drawd

78

79

James
January 30, 1987
(continued)

4/7

There
James ~~I~~ Terer was a play
at the gym and I liked
where
the part were the pirate
was trying to pull his
sword belt
sorde from his ~~bal~~ belt and
the princess said gloom
and the loli pops grow on
trees.

James
April 7, 1987

and it was funny when the king, prince price, and the princess was trying to catch the tail of a dragon.

5/5

James I like summer best becouse I get out of school and then we go to pinics at the parks and we might go to Disney land and sea world and I think it will be fun this summer ioh I almost

James
May 5, 1957

forgot I will go swiming.

Appendix D

Sample Lesson Plans for Writing Using Children's Pattern Books

SAMPLE LESSON PLANS

PATTERN BOOK: MAMA DON'T ALLOW By Thatcher Hurd

OBJECTIVES:

Students will be able to

1. Listen to find out what Mama doesn't allow.
2. Retell the story.
3. Write a story.
4. Read their story.

PROCEDURES:

1. Read the story aloud.
2. Discuss what their Mamas don't allow.
3. Write and illustrate a new story: using pattern, "Mama don't allow-------because-----.
4. Revise and elaborate by asking, "Tell me more about----"

LESSON PLAN 2

WHEN I WAS YOUNG IN THE MOUNTAINS" by Cynthia Rylant

OBJECTIVES:

1. To listen to a story about when your great, great grandmother might have been young.
2. Discuss things children can remember about when they were little in Pueblo.
3. Write and illustrate a story patterned after the book.

PROCEDURES:

1. Talk about grandmothers, grandfathers long ago.
2. Read story, show pictures
3. Discuss what they remember about kindergarten, etc.
4. Write on board: When I was young in Pueblo--------
5. Children complete story and illustrate. Encourage them to write as much as they can remember.
6. Share and expand stories.

LESSON PLAN 3

YOU LOOK RIDICULOUS SAID THE RHINOCEROS TO THE HIPPOPOTAMUS
by Bernard Waber

OBJECTIVES:

1. To know it is good to be different.
2. To learn a new word, "ridiculous".
3. To write a story from the pattern.

PROCEDURES:

1. Discuss differences in rhinoceros and hippopotamus. Discuss how children felt when someone made fun of them. What did they say?
2. Talk about word the rhinoceros used. "You look ridiculous--"
3. Listen to story.
4. If time permits, act out story.
5. Write on board,"You look ridiculous," said the---- to the--------- because----------.
6. Encourage children to write as much as they can and illustrate.
7. Read story. Other children tell what they liked, then ask questions to help expand and clarify meanings.

LESSON PLAN 4

GUESS WHO MY FAVORITE PERSON IS by Byrd Baylor.

OBJECTIVES:

1. Listen to a story.
2. Write a story about favorite things.

PROCEDURES

1. Read all or part of book aloud, discussing favorite colors, places, people, etc.
2. Write a story patterned after the story: "Guess who my favorite -----is." or "My favorite ------is---------. Write as many favorite things as possible: thing, color, sound, smell, food, etc.
3. Expand and read stories.

LESSON PLAN 5

PANCAKES FOR BREAKFAST By Tomie De Paola

OBJECTIVES:

1. To listen to a story to discover how our great grandmothers lived long ago. (A social studies lesson).
2. To write about and illustrate a favorite part, or to write about making something for dinner.

PROCEDURES:

1. Discuss how Mother makes pancakes.
2. Tell story showing pictures, page by page.
3. Let child show picture and tell about a page.
4. Write "Pancakes for Breakfast" on board.
5. Children copy title and write favorite part and illustrate.
6. Some children may wish to write about making something else such as a pie, cake, bread, etc.

LESSON PLAN 6

I WAS SO MAD By Mercer Mayer

OBJECTIVES:

1. To discuss feelings and listen to a story about being mad.
2. To complete the pattern, "I was so mad---------"

PROCEDURES:

1. Read a story about a chipmunk who was very angry.
2. Discuss things that make us mad.
3. Write "I was so mad----------" on chalkboard.
4. Children illustrate and follow pattern to complete things that made them mad.
5. Read stories aloud and expand.

CHILDREN'S PATTERN BOOKS USED IN STUDY

Allard, Harry. The Stupids Have a Ball, Sandpiper, Houghton-Mifflin.

Brown, Ruth. A Dark, Dark Tale, Dial Books.

Baylor, Byrd. Guess Who My Favorite Person Is, American Library Association.

Charlip, Remy. Fortunately, Unfortunately, Parents Press.

De Paola, Tomie. Pancakes for Breakfast, Harcourt Brace Jovanovich.

Gag, Wanda. Millions of Cats, Coward-McCann, New York.

Hurd, Thacher. Mama Don't Allow, Harper and Row.

Mayer, Mercer. I Was So Mad, Little Golden Books.

Omerod, . 101 Things To Do With A Baby, Puffin.

Rylant, Cynthia. When I Was Young in The Mountains, E. P. Dutton.

Schwartz, Alvin. In A Dark, Dark Room, Harper and Row.

Schwartz, Alvin. There's A Carrot in My Ear, Harper Trophy.

Simon, Norma. Cats Do, Dogs Don't, Albert Whitman, Niles, Il.

Story Box/ Stage 1, The Wright Group, San Diego, Ca.

Szerkers, Cyndy. Little Bear Counts His Favorite Things, Little Golden Books.

Waber, Bernard. You Look Ridiculous Said the Rhineroceros to the Hippopotamus, Houghton Mifflin.